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THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

THE OBJECTS OF VALUATION

IN an earlier number of this JOURNAL,[1] I presented a theory about valuation-judgments. In so doing, I intentionally put to one side the question of the nature of value. I did not wish to add further complication by introducing a subject about which so much difference of opinion already existed. It seemed to me that it was theoretically possible to distinguish the logical or formal aspect of valuation from the nature of value in the same way in which it is possible to distinguish the logical form of, say, a descriptive judgment from the particular subject-matter described, or an asymmetrical transitive relation from the question as to whether the relation concerns a spatial, temporal or numerical series. I still think this distinction of problems is logically sound, but intervening discussions have changed my mind about its availability at the present time. Consequently, I hope at a later time to take up a discussion of the nature of value itself. Just now I want, however, to take advantage of some of the recent discussions to show wherein I failed to make clear the primary point of my theory. I shall use selections from the articles of Mr. Perry[2] and Mr. Bush as texts upon which to hang certain comments.

Mr. Perry says: "Suppose a situation in which I suffer from ill-health and hope to recover through the agency of a physician. There are several items in this situation which must be distinguished. I suffer from ill-health, and am aware that I dislike it. I desire recovery and am aware that I desire it. I believe that consulting a physician conduces to recovery. I adopt the course of consulting a physician, as a course conducive to my recovery. . . . Subsequently, because of what I dislike, desire and believe, I do consult the physician, and, thereupon, in consequence of having consulted the physician, I recover. . . . But there is no case of a value's being constituted by a judgment of it."

[1] Vol. XII., pp. 512–523, since reprinted with some additions in my *Essays in Experimental Logic*, pp. 349–389.

[2] This JOURNAL, Vol. XIV., No. 7, Dewey and Urban on Valued Judgments, the quotation being from pp. 173–174.

Now on the basis of the particular situation described by Mr. Perry I quite agree. According to the terms of the illustration, there is already in determinate existence a negative value, ill-health, there is also a determinate positive value, recovery (which, of course, is none the less determined for knowledge because it does not as yet physically exist). In addition to these intrinsic, immediate, or independent values, as they are variously termed by different writers, there is also a determined instrumental, or dependent, value: seeing the physician is serviceable, useful, valuable, *for* the positive value of health. Nothing could be clearer or more satisfactory. The most that a deliberative judgment could effect under such circumstances would be to assist in bringing into *physical* existence a value already, as value, given. And only an extreme bungler could confuse the assistance given by judgment in bringing a value into existence with that given by judgment in determining a value as such.

Of that particular bungling performance I plead not guilty. It might be a purely verbal matter to say that I do not conceive that propositions *about* values already given *as* values are valuation judgments at all, whether they are about value as immediate or about value in the sense of useful, any more than I should wish to term a judgment about a pin a pin-judgment. In such a case as that stated above, there is nothing whatever to mark off any distinctive logical type of judgment. If we call such judgments valuation-judgments, they are on precisely the same logical level as any propositions about matters of established fact. I can not make it too emphatic that I started out, so far *as respects cases of this kind,* from precisely the point of view maintained by Mr. Perry.

But there remains a question of fact, a question which is not concerned with the proper linguistic use of the term valuation or value-judgment. Are there not situations in which, while a man dislikes ill-health, it is not, *under the specific circumstances,* the object of his supreme dislike, and where, moreover, he does not know *what* he should supremely dislike and supremely desire? Are there not situations wherein the adequate data for settling a determinate like and dislike *can not* be had until after an act which issues from a preliminary estimate or valuation as to what the good *will* be? This does not mean that health has not been a good in the past, or that it it is not a good "in general." It means that there may be a case in which an agent is genuinely uncertain whether to desire—or like—the recovery of health or to desire making a medical discovery at the cost of his own health. In such cases there is no good or value given to judgment; whether the good be recovery of health or loss-of-health-along-with-increase-of-reputation-and-a-medical-discovery-to-aid-others is genuinely unsettled. Now it was of this sort of situation

and of this only that I contended that valuations aid in determining a new good; and contended that *such* valuations possess a distinctive logical character which the orthodox logics have passed over too lightly. Now either or both of these convictions may be wrong, but their error can hardly be shown until the prior question has been raised: Are there situations such that it is objectively uncertain what *their* good, value or end is—it being understood that their good *if* determinately given would be an intrinsic and immediate good? After this question has been dealt with, the question of the nature of the judgment of valuation (estimation or appraisal) involved in them will naturally follow.[3]

The passage from Mr. Bush is as follows:[4] "The city of Syracuse has a very beautiful institution. The state fair is held there every autumn, and on the evening of the last day there is a parade of all the city's children. The people of Syracuse regard this parade with an almost passionate affection. It seems natural to say that they value it supremely. Does value really attach to things like this or to the means used to bring them about? Of course, it is a verbal question, but it is a question that takes us to considerations where instrumentalism is no longer a sufficient point of view."

As in the case of the former quotation, I can only express my unqualified agreement—except that instrumentalism is not so much insufficient as grossly impertinent, irrelevant. It would be, as Mr. Bush intimates, a purely verbal matter to say that in such cases no valuing at all occurs. Yet such a verbal approach might be one way of getting at a fact, namely, that no valuing occurs in the sense of reflective comparison, an inquiry which involves deliberating, weighing one consideration against another. This might be a rhetorical

[3] It is possible, though I am not sure, that I might make my point in terms of Mr. Perry's own thinking by reference to his theory of the "objective" of judgments involving belief or commital. See this JOURNAL, Vol. XIII., pp. 569–573. It seems reasonable to suppose that there are cases of genuine doubt as to what the "objective" *should* be, as to what the purport or deliverance of an entertained belief *better* be. In such a case, if we employ reflection, if we make a judgment to decide upon an "objective" as a precondition of applying that "objective" in a further judgment, there is found, I fancy, a kind of judgment logically similar to that which I was dealing. When Mr. Perry in the same connection says that the "pragmatic theory is correct in emphasizing the formative, creative action of mind, and in likening the cognitive situation to the desiderative or volitional situation" (p. 572), and yet in a later article takes such pains to deny any formative action on the part of thought in constituting the object of a desiderative situation, I confess myself perplexed. I get the feeling that he has left his older opinion about the nature of valuation-judgment untouched by his revision of his theory of belief-judgment, and that if he applied his latter theory to the former topic it would inevitably result in a view of valuation not incompatible with that which I set forth.

[4] This JOURNAL, Vol. XV., No. 4, pp. 95–96.

way of getting at the fact that to the citizens the object is in-valuable, that is to say one whose worth is not subjected to critical questioning. The citizens value it "supremely" not in the sense that after considering and comparing any number of things they have arrived at a definitive scale in which the procession outweighs all other goods, but in the sense that they unreservedly, without any questioning, prize and cherish the institution.

So far there is, I take it, no difference of opinion between Mr. Bush and myself; he recognizes as explicitly as any one could desire that I expressly drew a distinction between the non-cognitive act of prizing, finding good or dear, and the cognitive act of valuation. But he goes on to ask whether in making this distinction "the word value does not become synonymous, in the instrumentalist presentation, with the word use." And if such be the case, why not, as Mr. Bush pertinently asks, drop the word value and confine one's self to the term use or valuable? And he goes on to interpret my position as meaning "value occurs when we face the question, What things or methods have the value of utility under the circumstances?"

Just here is where I entirely failed to make myself comprehensible to Mr. Bush. Just how far the obscurity of my exposition is the cause I can not well judge; if my exposition as a whole gave Mr. Bush this impression, I express my appreciation of his tenderness in dealing with an account which is complicated and prolix to no other end than to arrive at a result which can be stated in a few sentences and with which, as he says, no one would disagree. Possibly the term "instrumentalism" itself suggests that judgments are held to be about instruments or means; possibly calling a judgment of valuation a practical judgment suggests, in the current implications of the word practical, the same idea. If so, both suggestions are quite misleading. The instrumental theory of judgment does not mean that judgment is about instruments; it refers to the *function* of all judgment *qua* judgment, not to the subject-matter of some judgments. In any case, the emphasis was put not upon the instrumental, but upon the *experimental* character of valuations. It may well be that the primary linguistic connotation of the term "practical" is useful; unfortunately we have no unambiguous words in this connection. But I tried to make it clear that by "practical" I meant *what* is to be done, rather than *how* to accomplish something already given as a satisfactory end. Judgments about means, so far as they do not themselves enter into judgment about the constitution of an end or good,[5] are, I should say, technical rather than

[5] See *Essays in Experimental Logic*, pp. 340–344, and pp. 358–362 for cases in which valuation of means and of ends, respectively, are two ways of getting at the same thing.

practical; by which I mean that our important practical inquiries concern ends and goods.

This brings me, of course, to exactly the point which I made in discussing the passage from Mr. Perry. Sometimes every immediate or intrinsic good goes back on us. We do not confront any indubitable good. We are in the dark as to what we *should* regard with passionate esteem; we are beginning to suspect that something which we prized unquestioningly and directly in the past is no longer worth our while, because of some growth on our part or some change in conditions. Now in such a state of affairs we may of course trust to luck; we may wait for something to turn up which will afford a new unquestioned object to cherish and hold to. But sometimes we attempt to further by means of deliberation the production of such a good. We search in order to form an estimate of what would be the good of the situation if we could attain it. Add to these conditions the further condition that we can not be *sure* that we shall prize or like the thing in question until it has been brought into existence by an act following upon a judgment, and we have before us the kind of situation with which I was concerned. It frequently happens that, being in uncertainty, I conclude after consideration that the best thing that I can do is so and so—in short, that if I act so as to bring certain consequences into existence I *shall* like them or find them good. But when I act and the consequences follow, I do not relish them at all. Now this, I submit, is a very different sort of thing from discovering that I have made a mistake in my judgment as to the useful means of accomplishing something. It means that I have made a mistake in my valuation of an immediate good—that is of what, *when it is brought into existence,* will be an immediate good —or bad.

Let us return to the illustration of Mr. Bush. It is conceivable that some citizen of Syracuse who had habitually regarded the procession with passionate regard, might be led to question its worth. He might learn that a number of children had been made ill, or become seriously over-excited, or were becoming over-fond of display for sake of attracting attention to themselves. This would not alter what was past, his former liking, the fact that he *had* experienced an immediate, independent good. But it would lead him to a new act of valuation; he would seriously question whether he is henceforth to regard the parade with liking, hesitation or repugnance. He might attempt to use his judgment to come to a reasoned conclusion in the matter, and might then try to arrange so that the next parade would not involve these obnoxious features. Or he might attempt to arrange some other function giving the opportunity for an immediate realization of the beauty of congregated child-life. In any case, the

result when it occurs will be an immediate good or bad—a matter of direct liking or the reverse. But, none the less, it will have been constituted, in part,[6] by the prior valuation—the prior reflective estimate of a non-instrumental good.

I should be glad to think that this explanation, if I have succeeded in making anything plain, would evoke an opinion that if this is what is meant, nobody will disagree. But I am not sanguine that such will be the case. For my view goes contrary to the classic view not only as to the logic of all judgments, but of moral and political conceptions. For the prevailing view is that goods, ends, "values" are all given, given in the sense of being completely there for knowledge, provided only we could get at them. Disputes in ethical and social theory have concerned themselves for the most part only with the question of *where* and *how* the goods are given: whether in experience, feeling, sensation, or in thought, intuition, reason; whether in the subject or in the object; whether in nature or in some transcendental realm. The important fact (provided it be a fact) that serious inquiries into conduct, individual and collective, must be concerned with an hypothetical and experimental effort to bring *new* goods into existence, an attempt made necessary by the slipping away of all given determinate goods, fails to secure recognition. I console with a belief that while my own inexpertness in statement is largely responsible for my failure to make myself understood, some of the difficulty lies with the immensely difficult transformation in methods of thinking about all social matters which the theory implies.

JOHN DEWEY.

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BEHAVIOR

IF usage is properly based upon etymology, the word behavior may be applied to any observed change in a given object, under certain more or less clearly observable conditions. Thus the physicist may well speak of the behavior of the X-rays in the presence of a magnetic field; and the chemist is warranted in telling us that "the behavior of the nitrous salts of the amines is worthy of attention." We are thus referring to characteristics of what we speak of as the objective world.

The word is so commonly applied to living animal objects, however, that this application is usually taken for granted in ordinary

[6] I have never said that judgment is the *sole* determinant of a new object, but only that it serves to *re*construct or *re*organize, which implies another and independent variable.

parlance. But it is to be noted that in employing it with this narrowed reference we still speak of characteristics observable in the objective world with which the physicist and chemist also deal. We are treating of certain aspects of biology which is an objective science. In this sense I shall employ the word in what follows.

Now in studying animal life we observe various types of behavior. At one extreme we note what we call reflex or instinctive behavior, according as we find it more or less simple; this appears as the relatively immediate reaction to a given stimulus. At the opposite extreme we discover highly complex behavior that is hesitant and not immediate.

The biologist studies both of these types of behavior in all forms of animal life; in the higher animals and in man, and in both cases quite objectively. He studies them in all their forms and relations. He analyzes them, and in connection with certain of their forms observes, among other things, their relation to nerve activity, and thus establishes a special science of neurology. He observes in connection with certain other forms their relation to chemical reactions in the living tissues concerned, and thus establishes a special science of biochemistry.

But the biological student is himself a man, and as he observes his own activities, still as part of the objective world, he discovers in them these same two types of behavior. When in regard to his own body he studies that highly complex form of behavior that is hesitant and not immediate, he finds all that he discovers in connection with his studies of this type of behavior in other animals; but in very many cases *he discovers also something more.* He finds not only behavior of this special type, but "*conscious* behavior."

In this observation of his own behavior the student then has not only the characteristics that yield the special sciences of neurology and biochemistry, for instance, but a quite different characteristic that yields the special science of the conscious; and this is what has always been designated as psychology.

Arguing from analogy, or by other means, he may hold that this special type of behavior in other men, and in animals, must also have this conscious characteristic. This is, however, a matter of inference, and not of objective observation; and it is an inference which involves the metaphysical assumption that certain forms of behavior always have corresponding with them certain changes in consciousness such as he notes in his own experience.

Acting in accord with this inference based upon this assumption we are enabled to discover certain forms of behavior, or tendencies to behavior, in our fellow men which otherwise would be unknown to

us, by making note of the changes of consciousness they report to us by word of mouth. The great practical value of this is a matter of everyday experience, and is emphasized in the common life of the physician who constantly treats of the conscious states of his patients as symptomatic of special forms of organic behavior.

The "comparative psychologist," and the "behaviorist" also, makes constant use of this same assumption and inference, although they usually do not note the fact, and commonly speak of their work as though it was as purely objective as that of the chemist or physicist. They are really engaged in the special investigations of a certain type of biological problems; which special investigation is greatly facilitated by the acceptance of the metaphysical hypothesis of neururgic and noetic correspondence above referred to.

Now it is evidently possible for some man to hold that the consideration of neurology, brought to his notice in the course of his study of behavior, is unimportant and unfruitful, and hence unworthy of attention. And he may hold a similar view in regard to biochemistry. This is a matter of personal opinion. One who holds it, however, and who rejoices to proclaim it, is scarcely likely to be looked upon with respect by other thoughtful men in the scientific world.

In the same manner it is evidently possible for some man to hold that the consideration of psychology, brought to his notice in the course of his study of behavior, is unimportant and unfruitful, and hence quite unworthy of attention. But it seems to me that if he does so, and rejoices to proclaim such an opinion, he can scarcely expect to find that in the long run his views will be held to be significant. Yet, if I understand the situation, it is just such a view that is held, and openly proclaimed, by Professor John Watson, and by those who follow his lead.

This is no occasion to attempt to show that the study of the conscious characteristic of self-observed behavior is important and fruitful and, therefore, fully worthy of attention; as I think it would be quite easy to do. I would here merely emphasize the fact that Dr. Watson, in taking the position he holds, while developing the exceedingly valuable objective biological science which is now commonly called "behaviorism," is deliberately abandoning the study of psychology altogether; and in asking us to discard the concept of consciousness, and to substitute for it the concept of behavior as the substance of psychology, is dealing with an obfuscation that can not but be deplored.

Let us now turn to another closely allied point. As above noted, in the course of our observation of our own behavior as part of the

phenomena of the objective world, our attention is called to a certain form of this behavior that has a "conscious" characteristic. This "conscious behavior" Professor B. H. Bode believes he has shown to be "a future adaptation that has been set to work so as to bring about its own realization." I am not myself convinced that such a conclusion can be reached in relation to other animals and men as the result of purely objective observation of the type employed by the behaviorist and other biological students; although Dr. Bode's treatment seems to imply that it can.[1] Adaptation itself, at all events, is such an objectively observed fact; and Dr. Bode proceeds to state that consciousness is just this particular kind of adaptation.[2] This is as though, having found that a definite form of crystal refracts light in a certain way, one should say that this particular kind of refraction is the definite form of the crystal. One in making such a statement would be taking a definite characteristic found in connection with a definite objective situation, and identifying the objective situation with the characteristic. So far as I can see this is exactly what Dr. Bode does when he argues that "Consciousness . . . is just a future adaptation that has been set to work so as to bring about its own realization."[3] The logical absurdity of such a procedure is so self-evident that it would call for no comment were it not that it seems impossible to believe that Dr. Bode can intend to defend such a position. Yet his words certainly imply that he does; and if he does not, he surely should feel called upon to make his view clearer; because as it stands it is one that is representative of a good deal that is written nowadays by certain teachers of psychology in this country who, on the face of their words, apparently glory in their logical shame; and because it is dignified by being expressed by Dr. Bode in a chapter of the lately published *Creative Intelligence*, a book made up of essays which are supposed to present a "unity in attitude," the other chapters being contributed by John Dewey, Addison W. Moore, Harold C. Brown, George H. Mead, Henry W. Stuart, James H. Tufts, and Horace M. Kallen.

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[1] *Cf. Creative Intelligence*, pp. 233 ff.
[2] *Cf.* also *op. cit.*, pp. 242 and 256.
[3] *Op. cit.*, p. 244.

DOCTRINAL FUNCTIONS.

THE term propositional function, invented by Mr. Bertrand Russell, is perhaps the weightiest that has entered the literature of logic and mathematics in the course of a hundred years. It has the rare distinction of being a perfect name for a supreme concept. I am not about to expound its meaning at length nor to attempt to justify my estimate of its significance. It seems desirable, however, to remind the reader of so much of the term's meaning as will be essential to an understanding of the principal thesis of this paper.

Let it be recalled, then, that a propositional function is any statement containing one or more variables. If we denote these by x, y, z, *etc.*, then such simple statements as x is a philosopher, $x = 2$, x is a brother of y, $3x + 2y = 5$, x has been divinely appointed by y to subjugate z, $4x - 3y + 9z = 7$, will serve to exemplify what is meant by a propositional function. It is of fundamental importance to bear in mind that propositional functions, though they have the form of propositions, are not propositions. A proposition is a statement that is true or else false, but a propositional function is neither true nor false. The statements, $2 + 5 = 7$, $3 + 6 = 7$, are propositions, one of them true, the other one false; but the statement, $x + y = 7$, is neither true nor false; it is not a proposition but is a propositional function.

To derive propositions from propositional functions it is evidently necessary to substitute for the variables present in the latter what we may call constants, or terms of definite meaning; but such substitution, though necessary, is not sufficient, for it is always possible to select such constants as will, if substituted for the variables of a given function, convert the latter, not into a proposition, but into non-sense, it being understood that a non-sensical statement is one involving a contradiction in terms. Suppose, for example, that our given function is the statement, x is an integer less than 5. The *class* of all integers less than 5 is a constant, a definite somewhat. Substituting this constant for the variable x, we get the statement, the class of all integers less than 5 is an integer less than 5. This is neither a propositional function nor a proposition; it is nonsensical, the non-sense, or contradiction in terms, consisting in talking of a class of things as if a given class could conceivably be one of the things composing it.

The constants that, when substituted for the variables in a given propositional function, convert it into non-sense, may be called *inadmissible* constants for that function; all other constants, since they

convert the function into propositions, true or false, may be called the *admissible* constants for the function. The admissible constants for a given function fall into two classes: those that convert it into true propositions and those that convert it into false ones. It is convenient to call the constants of the former class *verifiers* of the function; and those of the latter class *falsifiers* of the function. The *verifiers of a function* are said to *satisfy* it and are called the *values* of its *variables;* and the propositions derived from a function by substitution of values of its variables for the variables themselves are called *values* of the *function.* Thus the values of a given function are the true propositions that are derivable from it by replacing its variables by admissible constants.

These ideas and distinctions being premised, I turn to the task of this paper, which is that of viewing in a somewhat new light the essential nature of what has come to be known in mathematics and modern logic as the postulational method of founding and constructing mathematical sciences or branches of mathematical science. What I shall say of postulate systems in general the reader may most readily grasp and verify by having constant reference to some specific system with which he may chance to be specially familiar, as, for example, the widely known system for Euclidean metric geometry, presented by Hilbert in his Foundations of Geometry.

It is well known that any postulate system (or system of assumptions or of axioms or of primitives as the postulates are variously called) contains one or more undefined terms, and that at least one of these denotes an *element,* that is to say, a thing or a substantive as distinguished from a relation. In the Hilbert system, for example, there are three undefined element names, point, line, and plane; in Veblen's System of Axioms for Geometry[1] there is one such name, point; and the same is true of Pierí's beautiful system for elementary geometry, of which an excellent account is found in the late Louis Couturat's *Les Principes des Mathématiques,* p. 192.

What is the office of the undefined element names in a postulate system? Undoubtedly the presence of these lends the system the appearance of having a definite subject-matter. The appearance, however, is appearance only: a postulate system has no definite subject-matter. We are said to interpret such a system—to assign it a definite subject-matter—when we assign to the undefined terms any specific significance reconcilable with the postulates. How many interpretations does a postulate system admit? At a later stage of this paper it will be proved that any postulate system admits of any given transfinite cardinal number of interpretations. At present it is

[1] *Transactions of the American Mathematical Society,* Vol. 5, p. 343.

sufficient to bear in mind the familiar fact that a postulate system admits more than one interpretation, for this fact shows that the rôle of the undefined terms is the rôle of variables, and it is this aspect of the matter to which I wish to draw attention. Because of the presence of variables in its statements a postulate system is not a system of propositions, as it is commonly said to be, but it is a system of propositional functions; and the same is, of course, to be said of all statements, or theorems, that are logically deducible from the postulates, for all such theorems involve the same variables as do the postulates themselves.

Now let P denote any given postulate system, and denote by T the set of any or all theorems deducible from P. Consider the body B of statements comprising both those of P and those of T. What ought B to be called? A doctrine? Certainly not, for a doctrine ought to have a specific subject-matter and it ought to be true or else false; but B, being composed of propositional functions, has no such subject-matter and is neither true nor false. Observe, however, that, though B is no doctrine, it has the *form* of a doctrine; note also that B contains variables and that it is, therefore, itself a variable in the sense in which any function of one or more variables is itself a variable. The suggestion arising from these considerations is inevitable and compelling: B ought to be called a doctrinal function.

A function to be a function must have values. What are the values of a doctrinal function? To answer, consider the facts. In order to interpret the system P, it is necessary and sufficient to replace P's variables by verifiers of its functions. In doing so, however, we pass from the system P (of propositional functions) to a new system P' of propositions, values of the functions, and it is the new system that has a definite subject-matter and never the old one; so, too, it is P''s statements, and never those of P, that are true. Just as P''s propositions are values of P's functions, so the system P' itself ought to be called a value of the system P. In interpreting P, what happens to T? Since the propositional functions T are logical consequences of the system P, it is plain that, in passing by interpretation from P to P', we at the same time pass from the set T of functions to a set T' of propositions, at once values of T's functions and consequences of P''s propositions. Evidently T' ought to be called a value of T. Now, since the act of interpreting P carries us from P to P' and from T to T', it is evident that the same act carries us from B, composed of P and T, to a B', composed of P' and T'; and just as P' and T' are, respectively, values of P and T, so ought B' to be called a value of B. This B, however, is a doctrinal function.

What is the value B'? Being a body of true propositions about a definite subject-matter, it evidently is a doctrine, and the doctrine is true. Accordingly our question as to what the expression, a value of a doctrinal function, ought to mean, is answered: a value of a doctrinal function is a true doctrine derivable from the function by substituting for its variables verifiers of its postulates.

How many values has a doctrinal function? Let P denote, as before, the system of postulates of the function. The postulates contain at least one variable element, e. Let I denote one interpretation of P, giving rise to one doctrine, D, a value of the function. Let e' denote the verifier of the postulates that was used in obtaining I. The verifier e' is a symbol for a class of things $e'_1, e'_2, e'_3 \cdots$ satisfying the relations stated by the postulates. Now let O be any given object of thought. The object O and any given one of the e''s together constitute a pair of things. Denote by ϵ the class of all the pairs thus obtainable, and let the pairs in ϵ be $\epsilon_1, \epsilon_2, \epsilon_3, \cdots$. It is plain that a one-to-one correspondence subsists between the e''s and the ϵ's. We agree to say that any set of the ϵ's satisfy a given relation when the relation is satisfied by the e''s contained in the given ϵ's. Hence instead of e' we may use ϵ as a verifier of P. So doing, we get an interpretation I' and therewith a corresponding doctrine D'. As ϵ is different from e', I' is different (in content or subject-matter) from I, and D' similarly differs from D. Evidently there are thus obtainable as many different doctrines—as many different values of the given doctrinal function—as there are different objects O of thought. We have, therefore, the remarkable proposition that the number of values of any doctrinal function is equal to any given transfinite cardinal number.

A given doctrinal function has infinitely many values not included in the infinitude obtainable in the manner indicated in the preceding paragraph, and it is those not so obtainable that men happen to be most interested in. It will be sufficient to illustrate this twofold fact by means of a familiar example. Let our doctrinal function be that one which consists of the above-mentioned Hilbert system of postulates together with all theorems deducible from them, and let us denote it by DF. By Hilbert the three variable elements are called point, line, and plane. To avoid prejudice these names ought to be replaced by symbols denoting variables, as v_1, v_2, v_3; then the postulate, two distinct points always completely determine a line, would read: two distinct v_1's always completely determine a v_2. And so on for the remaining postulates. A reader will find it very instructive to make the indicated substitutions. Let us suppose it done. Our doctrinal function DF now discourses about the v's and

about nothing else. To interpret *DF*, to derive one of its values, to get a true doctrine from it, it is necessary and sufficient to replace the v's by verifiers of the postulates involving them. One set of verifiers is obtained by letting v_1, v_2, v_3 denote, respectively, point, line and plane, allowing these names to have the significance they have had ever since they were described by Euclid in his Elements. The resulting value of *DF* is the familiar doctrine traditionally known as the Euclidean geometry of the point, line, and plane.

It is well known that another value of *DF* is obtainable by replacing the v's as follows: v_1 by a triad (x, y, z) of real numbers; v_2 by the system of triads satisfying a pair of equations, $Ax + By + Cz + D = 0$, $A'x + B'y + C'z + D' = 0$, it being supposed that the equations have a common solution and that in neither of them are all the coefficients zero; by v_3 the system of triads satisfying one such equation.[2] The doctrine thus arising from *DF* is evidently not a geometry; it is absolutely free of all reference to any idea of spatial extension; it is a pure algebra, the algebra of triads of real numbers.

Given the Euclidean geometry of the point, line, and plane, it is possible to find among its configurations three geometric entities (other than point, line and plane) which will serve as verifiers of the Hilbert postulates and will accordingly give us another value of *DF*. This value, like the former, is a geometric doctrine, but it differs from the former in content. In like manner, from this second value of *DF*—from this second doctrine—a third one can be obtained, and so on indefinitely. Proof of this fact is omitted for lack of room. The fact means, however, that among the values of *DF* there is a denumerable infinitude of doctrines that must be called geometric because each of them deals with a subject-matter involving essential reference to spatial extension. It is true also that among the values of *DF* there is a denumerable infinitude of algebraic or numerical doctrines; and it must be added that *DF* owns a denumerable infinitude of values, or doctrines, that in point of content are neither geometric nor numerical. All these doctrines are isomorphic with one another and with their common matrix, the doctrinal function *DF*, from which they spring. The values of a doctrinal function differ from the function in that they have content while it has not, and in the further fact that the values are true while the function is neither true nor false. The doctrines differ from one another in respect to *kind* of content. This last difference is psychological and not logical.

The relation of a doctrinal function to its values casts a clear light on the relation of form to content, of logic to psychology. We happen to live in a world where an infinitude of psychologically diverse

[2] A proof that the indicated values of the v's are verifiers of the Hilbert postulates is found in Weber and Wellstein's *Elementare Geometrie*, 2d ed., p. 83.

doctrines are logically one. How unfortunate it would be to live in a world where no two doctrines were isomorphic!

As an interesting corollary to the foregoing discussion it must be said that Hilbert's Foundations of Geometry is not a geometry at all, nor is it any other doctrine; it is a doctrinal function having an infinitude of values, some of them geometric, some of them algebraic, some of them neither the one nor the other. The reader will perceive that analogous remarks are applicable to any and every other postulationally established scientific structure involving variables.

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ERROR IN PROFESSOR HOLT'S REALISM

THERE is much that as a realist I have learned from Mr. Holt's realistic writings. On very many points I can not agree with him, but even where this is the case, I generally know why; his clear discussion has always helped to clear away difficulties, and if it has not contributed a satisfactory solution, it makes a satisfactory solution easier to obtain.

In this paper I wish to give my reason for thinking that Mr. Holt has not solved the problem of error. What I take to be his failure confirms me in my conviction that a favorite realistic enterprise of these days is very unpromising. Perhaps the majority of contemporary realists insist that there is nothing in consciousness that *in any way* owes its being to its being in consciousness. Everything that is has its own "independent" being, is "a neutral entity." Some neutral entities may be dependent upon *other* neutral entities, but "one salient fact about them, in so far as they enter into individual experiences (though this is really a fact about experience), is that 'their being experienced makes no difference to them,' they remain what they are!"[1] The greatest difficulty which those who do not hold this view find in it is the difficulty of providing a place for error. Many different provisions have been suggested, and it is Mr. Holt's solution of this difficulty that we are to examine now.

Mr. Holt maintains "that all errors are cases of contradiction or contrariety. One has met error who has experienced that A is B and that the same A is not B. But the experiencing is not the significant fact, and that all errors are of knowledge is true merely by definition, since contrariety or contradiction is called 'error' only when it occurs in some person's field of consciousness."[2] "Every

[1] C. C., *i. e.*, Holt's *The Concept of Consciousness*, p. 103.

[2] N. R., *i. e.*, *The New Realism*, p. 361.

case of error or untruth is a case of contradictory propositions."[3] "Now the problem of error in knowledge is virtually solved, I believe, by this view of the meaning and the being of error itself. Not a great deal more remains to be said. The errors of 'opinion' that were so early recognized, are of course always contradictory propositions—the opinion that '*A* is *B*' opposed by the opinion that '*A* is not *B*'; no one ever experienced *B*-not-*B*, or the lighthouse-star, for these are mere printer's ink. The errors in knowledge are, then, the presence in the knowledge-system of propositions that contradict each other: and such a situation calls for no special explanation, because it is found in most manifolds that contain propositions."[4] Propositions and contradictions between propositions are all "neutral"; "'their being experienced makes no difference to them'"; it merely entitles contradictions to the distinctive name of "error" without altering their nature in any wise. Every error then is just a "neutral" contradiction that has got into consciousness.

To understand error then it is only necessary to understand what a contradiction is, and how anything, contradiction included, gets into consciousness.

Any entity gets into consciousness by a specific response of a nervous system to that entity. Consciousness is "a cross-section of the infinite realm of being and a cross-section that is defined by the responses of a nervous organism."[5] "Now this neutral cross-section outside of the nervous system, and composed of the neutral elements of physical and non-physical objects to which the nervous system is responding by some specific response,—this neutral cross-section, I submit, coincides exactly with the list of objects of which we say that we are conscious. This neutral cross-section as defined by the specific reaction of reflex-arcs is the psychic realm:—it is the manifold of our sensations, perceptions and ideas:—it is consciousness. . . . The knowing process is one form of the response process."[6] To be "in consciousness" is to be in such a cross-section defined by the specific response of a nervous system; it is to be "included in the class of things which we name a consciousness";[7] so that, when a nervous system responds specifically to a color out there in space, "*that color out there* is the thing in consciousness."[8] A contradiction gets into consciousness in exactly the same way; for the nervous system specifically responds to contradictions as well as to any other sort of neutral entities.

[3] C. C., p. 264.
[4] C. C., p. 279.
[5] C. C., p. 208.
[6] C. C., pp. 182–183.
[7] N. R., p. 355.
[8] N. R., p. 354.

Now what is a contradiction? For our purpose we need only an answer in the way of instances of contradictions. Every "case of collision, interference, acceleration, and retardation, growth and decay, equilibrium, *et cetera, et cetera,* is an instance" of "true cases of (propositional) contradiction among natural laws,"[9] and all contradictions are propositional. "All counterbalancings, as in cantilevers and Gothic vaultings, are contradictory forces in equilibrium . . . all processes of warming and cooling, of electrically charging and discharging, of starting and stopping, of combining and separating, are processes of which one undoes the other. . . . Nature is a seething chaos of contradictions."[10]

The conclusion is simple: "Errors of experience are, then, precisely as we should expect . . . they are the being together in knowledge of contradictory *propositions,* such as have just been mentioned."[11]

Now Mr. Holt, after defining consciousness, was very careful to try to show that his definition of it deductively yielded "the essential features of mind [*i. e.,* consciousness] as they are empirically observed."[12] As proof of the correctness of his definition he insisted that consciousness as thus defined "coincides exactly with the list of objects of which we say that we are conscious."[13] He should therefore be willing to submit his definition of error to the same test: Does error thus defined coincide exactly, or even with some remote approximation, with the list of beliefs that we say are errors? Let us see what results when this test is applied.

When "one animal kills another"[14] and I perceive this contradiction, there is an error of perception. A German atrocity, if witnessed, is an untruth—this does accord with the position taken in Wilhelmstrasse! Any one who experiences "disease" has a delusion —this confirms Mrs. Eddy's contention in *Science and Health!* But although German humanity and Christian Science are thus vindicated, natural science comes off rather badly: "The pretensions of many natural scientists that they find no contradictions is uncommonly absurd, because in fact they find little else,"[15] and of course whatever contradictions are found, by that very finding become mistakes. Verily, if Mr. Holt's solution of the problem of error is correct, we need all the comfort that he administers to us:

[9] N. R., p. 364.
[10] C. C., pp. 275–276.
[11] C. C., p. 270.
[12] C. C., p. 185.
[13] C. C., p. 182.
[14] C. C., p. 277.
[15] N. R., p. 365.

"Contradiction is after all a tame and harmless thing, although a very interesting one!"[16]

The difficulties multiply when we pass from perception to memory and anticipation. For, according to Mr. Holt, the nervous system responds specifically to neutral propositions and contradictions in the past and future as well as in the present. Any one who remembers having stopped at some cathedral city in Europe and having seen a Gothic vaulting is twice in error, for both "stopping" and "Gothic vaultings" are contradictions. Every Tommy who, going "over the top," is anticipating a lively scrap is in error, for surely a scrap is a "collision," and a "collision" is a contradiction.

Mr. Holt's philosophy has certainly avoided the crime of explaining error away, a crime which he accuses so many philosophies of having committed. He seems rather to have gone so far out of the way of this felony that he has explained innumerable errors into existence. His theory should be the envy of the maieutic profession, for from the womb of being it continuously and with painless delivery brings buxom errors to birth whose imminent advent no prognostician ever even suspected, or could suspect, seeing that the bones of many of the children are as yet unformed.

And in the case of anticipation still another difficulty is added to complete our confusion. For "ideas of the future may be a trifle more liable to error than ideas of the present or past."[17] Are there then just a few more contradictions in the neutral realm of the future than in that of the past or the present? Or is the nervous system a trifle more responsive to future contradictions than to those past and present? It would seem as if we must choose one of these alternatives, for to be more liable to error in our ideas of the future must mean, of course, to be more liable to get future contradictions into our consciousness. Or—it is indeed risky to suggest it—is it possible that some other conception of error has slipped in here, a conception that Mr. Holt has been theoretically opposing all along, but practically uses because it is one that no amount of explaining error will explain away?

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REVIEWS AND ABSTRACTS OF LITERATURE

The History of European Philosophy. WALTER T. MARVIN. New York: The Macmillan Company. 1917. Pp. xiii + 439.

Professor Marvin's *History of Philosophy* is both a source of delight and a source of regret. It is a source of delight because Pro-

[16] *Ibid.*

[17] C. C., p. 252.

fessor Marvin knows how a history of philosophy ought to be written. It is a source of regret because he has not written such a history. Why he has not written such a history is obvious; it is because that kind of a history can not be written. But Professor Marvin has done the next best thing, he has given a laboratory manual and a bibliography from which the student can construct a history for himself, a history which will come to him as a discovery and not as a presentation.

How should a history of philosophy be written? One should, I dare say, write the history of philosophy much as Plato wrote philosophy. By skilful stage-setting Plato creates a situation in which the truth he wishes to present comes as an impression rather than as a positive statement of fact. So far as is possible within the compass of a very small book it seems to me that Professor Marvin has followed this method with marked success. It may be designated as an attempt to introduce the experimental method into the philosophical sciences. This is accomplished partly in what the author himself says in the way of helpful suggestions, but much more in the excellent selection of bibliographies appended to the end of each section. The bibliographies are, I think, the best and most useful for actual work to be found in any history of philosophy which has yet appeared.

The book is in three parts. Part I. consists largely in historical methodology. Professor Marvin begins in the right place and in the right way, though one wishes that he had said a little more about the philosophy of history and the psychology of learning. And one has the feeling, too, that he has not tied the expository part of his book quite closely enough to the Introduction.

The task which the historian of philosophy sets for himself to perform is to write the history of those general ideas which have been of controlling influence in shaping the affairs of men. That *in some sense* general ideas exist is a fact that no one doubts. And that in some sense, whether true or false, they exert a powerful influence on human affairs is likewise a fact beyond dispute; though it is a rather sad fact that they often attain popular acceptance only after they have outlived their usefulness, and thus become hindrances rather than aids to progress. To investigate these general and abstract ideas, to show how they originate, and to relate them to the various movements and tendencies of the ages in which they appear is the chief task of the historian of philosophy. The successful performance of this task involves a recourse to other sciences as aids, chief of which are anthropology and psychology. Thus Professor James, speaking the language of anthropology, tells us that Kantian categories instead of being fixed and eternal principles are rather

survivals of remote ancestral ways of responding to life. And surely Cornford has made much of early Greek philosophy intelligible by the use of the anthropological method of "collective representation." The introductory part of Professor Marvin's book is concerned largely with anthropology. Such topics as "The Recency of Civilization," "Primitive Thought" and its gradual development into science are those that receive attention.

Much light has also been thrown on historical interpretation by behavioristic psychology. Probably no chapter in any language is more useful to the historian of philosophy than the chapter on "Memory and the Learning Process" in Ladd and Woodworth's *Physiological Psychology*. From the point of view there suggested general ideas are standardized modes of response. We do things in a certain way because others before us have done them that way, not that we imitate the past, but rather because the past survives, is conserved and utilized in the present. I think that Professor Marvin has hardly done justice to the psychology of learning and its importance as an aid to historical interpretation. However, the deficiency in the text is made up for in the excellent bibliography at the close of the chapter on "Changes in Man's Mental Nature Wrought by Civilization."

Parts II. and III. of the book are given to an exposition of the main facts that go to make up our intellectual inheritance. Professor Marvin's method has already been indicated. It is not so much to catalogue the facts as to put the student in possession of such information as will enable him to grasp the facts from his own investigation.

Viewing the book as a whole, there are two things which call for special attention and which differentiate this book from most histories of philosophy. The first is the rejection of the stereotyped division of history into ancient, medieval, and modern. Mr. Marvin has only two divisions, ancient and modern. The ancient period stops with the Church Fathers. So-called medieval thought is subsumed under modern. One wonders if it would not have been truer to fact to have subsumed modern thought under medieval! For this twofold division Professor Marvin has the sanction of many contemporary historians who are leading us to doubt the conception of any very definite medieval period. There is, I think, in the periods usually separated as medieval and modern, enough unity in blood and temperament, in method of approach and interest, and in problems considered, to justify the inclusion of all philosophizing under one grand division.

The second noteworthy feature of the book is the close alignment

of philosophy to the general social, economic, political, and scientific movements of the past. General ideas have too frequently been abstracted from their context and set up to form an independent and detached intellectual tradition. Such logic lifting with its criminal implications has been too often indulged in. Histories of philosophy have been too much histories of *abstract* ideas rather than accounts of the relation of *general* ideas to intellectual progress. For, after all, what the serious-minded student of history wants to know is what influence general ideas have had in the determination of human conduct. For back of statecraft and industries, back of institutions, manners, and creeds lie ideas. The justification of a study of the history of philosophy consists for the most part in the light that an analysis of general ideas throws on an interpretation and understanding of human behavior. In this respect Mr. Marvin has succeeded about as well as one can within the compass of a small volume. The closing pages in particular are noteworthy for the sketch they contain of the development of the ideas of toleration, liberalism, and social democracy.

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The Idea of God in the Light of Recent Research: The Gifford Lectures in the University of Aberdeen, 1912, 1913. A. Seth Pringle-Pattison, pp. 5–417, Clarendon Press.

The Idea of God by Professor Seth Pringle-Pattison is a scholarly addition to the series of lectures made possible by the generosity of Lord Gifford. Professor Pringle-Pattison's work is marked throughout by historical thoroughness, breadth of vision, and sincerity and consistency of purpose.

A brief summary of the main argument of the book—for it is an argument—will explain Professor Pringle-Pattison's position. Starting with Hume's *Dialogues concerning Natural Religion* he finds that "the vague residuum of theistic belief which was all Hume considered deducible from the evidence" (p. 24) is significant indication of the tenacity with which man holds to some form of theism. As he passes from Hume to Kant, the author notices with approval Kant's very different method of approach as "not only sound in itself, but the fundamental contention of all idealistic philosophy since his time" (p. 24). Kant, as is well known, employed the idea of moral value to determine the idea of God. After Kant there arose a philosophical conflict, which Professor Pringle-Pattison calls the nineteenth century duel between idealism and naturalism. In this conflict Professor Pringle-Pattison sees on one side a tendency to set the principle of value in opposition to reason—to its own

destruction rather than reason's—and on the other side a tendency to substitute for scientific theory a fragmentary and partial scientific truth, which becomes, he says, a "scientific incubus." It is largely due to the development of biological science that we have been freed within the last generation from this "bad dream of Naturalism" (p. 66), which he further defines as "the type of theory which so emphasizes the continuity between man and the non-human nature from which he springs as to minimize, if not entirely to deny, any difference between them. It denies at any rate any central significance to human life in the play of cosmic forces. Consciousness is an incident or accident of the universe, which does not throw any special illumination upon its ultimate nature. It arises and passes away: the physical basis of things remains. Naturalism is, in short, a larger, and in some respects a looser, term for what used to be called Materialism" (p. 89).

Under the liberating influence of modern biological thought, we come to a fundamental conception foreign to the older Naturalism, the conception of *"continuity of process and the emergence of real differences"* (p. 103). From this principle it follows that man may be said to be organic to the world. Moreover, Professor Pringle-Pattison insists that in man's experience the true nature of his world reveals itself to him. He says: "I attempted to show the inherent absurdity of the position that, because knowledge is the result of a process, the truth of the report is thereby invalidated. . . . The thing as it is and the thing as it appears are in principle the same fact differently named, because looked at in different aspects" (p. 132).

This principle of man's physical and cognitive relation to the world must be extended, Professor Pringle-Pattison believes, to include his moral nature. There is not, for example, the cleavage between man as moral and nature as non-moral which is a supposition underlying the "Religion of Humanity" proposed by Comte. The author feels that it is a misleading dualism, inherited from Kant, to hold that: "Nature and man are not part of one scheme of things: Nature is just, as it were, a brute fact with which man finds himself confronted" (p. 153).

This dualism is not less pernicious, in his opinion, when stated in terms of Agnosticism: that one member of the dualism is a blank abstraction, to which "no attributes can be ascribed." Furthermore the attempt of Panpsychism to render the terms of the dualism less hostile "by resolving external nature into an aggregate of tiny minds, or still worse, of 'small pieces of mind stuff'" (p. 188) gains nothing and introduces much confusion.

The monism which he establishes takes this form: "Nature as a

whole should be recognized as complementary to mind, and possessing, therefore, no absolute existence of its own apart from its spiritual completion; just as mind in turn would be intellectually and ethically void without a world to furnish it with the materials of knowledge and duty. Both are necessary elements of a single system" (p. 189).

This idealistic position he is at pains to distinguish from Berkeley's position, which he calls "mentalism." "God as immanent—the divine as revealed in the structure and system of finite experience," this, he says is the text and outcome of the argument thus far (p. 215).

He thus allies himself admittedly with "absolutist" writers like Mr. Bradley and Professor Bosanquet, although he finds Mr. Bradley's method of procedure unfortunate (p. 226), however generally sound his conclusions. He agrees with Professor Bosanquet that we reach the Absolute, not from the bare idea of a systematic whole, but by inference from experience, and by taking, as he says, quoting Professor Bosanquet directly, "the general direction of our higher experiences as a clue to the direction in which perfection has to be sought" (p. 232).

In speaking of the nature of our assurance of this position about ultimate reality, Professor Pringle-Pattison makes two very significant admissions. He says that "if we ask what is the nature of our certainty that existence, the world of facts, is ultimately and throughout intellectually coherent . . . we are bound to reply that in a sense it is an unproved belief" (p. 239). He says this postulate of reason may be regarded as a "venture of faith." But, and this is the second significant admission, he holds that faith is the confidence "that thought, when consistent with itself, is true, that necessary implication in thought expresses a necessary implication in reality" (p. 240). This he thinks is the presupposition of all thinking.

The remaining seven chapters do not further advance the main argument, although they add greatly to the completeness with which the thesis of the immanence of God in the world is presented. "The infinite in and through the finite, the finite in and through the infinite—this mutual implication is the ultimate fact of the universe as we know it. It is the Eternal fashion of the Cosmic Life" (p. 315).

This is a theme which will attract many readers, and it is safe to predict for the book a wide public, since it has in addition the attraction of literary charm, and a manner at once scholarly and clear. It is one of the few books in philosophy which will hold both laymen and professional students.

It presents, however, certain aspects which can not be allowed

to pass unchallenged, especially since the author insists in the preface that its chief interest is "neither critical nor historical, but constructive throughout" (p. vii), although to the general reader, as to the present one, its value may seem to lie in its critical and historical undertaking rather than in its constructive phase.

The author has neglected to consider an alternative interpretation to the immanent purposiveness of reality, one suggested by a school of philosophers whom he rather summarily dismisses (pp. 22, 288). Starting from the biological principle which Professor Pringle-Pattison himself finds so important, namely, the conception of "*continuity of process and emergence of real differences,*" in the course of the development of life, we do arrive, as he says, at a conception of man as organic to the world. What this organic relation is, I believe Professor Pringle-Pattison essentially misconceives. Granted, as he figuratively says, that "Mind is set in the heart of the world," what does it then mean to say that "it is itself the center in which the essential nature of the whole reveals itself"?

To be concrete, we may think that the woodland path which is guiding a hunter's course is "mind" in the sense that it has meaning for the hunter and demands from him a certain form of behavior. In like manner, to proceed in Professor Pringle-Pattison's method, we can extend the organic relation of man to his world and find in the "heart of the world" moral values, for particular situations call for choice in terms of better and worse, and thus indicate the organic moral relation of man to his environment.

What Professor Pringle-Pattison fails to see is that in these relationships the rôles of man and of nature are not identical. Nature, or the world, is the instrument through which man knows, and through which he chooses, but this relationship is not reversible. *Nature never knows through man, nor chooses through him,* which is the assumed formula of the purposive immanence which Professor Pringle-Pattison finds. It is this erroneously conceived relationship which he elevates to the position of Deity, and it is that clue that he is following in his search for the Absolute, even while he believes he is following an empirical method.

In explaining the nature of the Absolute, Professor Pringle-Pattison fails signally to satisfy the unescapable questions connected with time, truth and freedom. In regard to the absolute experience of time, his best answer in reply to critics of Absolutism like Professor McGilvary is a faulty analogy. "A parent can sympathize with the ephemeral joys and unreasoning sorrows of his child. May we not extend the analogy" (p. 365)? Moreover, his treatment of time makes succession a defect (p. 355) and time itself mere illusion (p. 366).

The relation of the Absolute and truth is no more satisfactory. Truth appears as timeless (p. 347) and as the Whole (pp. 97, 106–7, 109, 154–6, 177, 215, 331–2, 362), and therefore as the ultimately unintelligible.

In regard to freedom, what, finally, are we to think of the value of the idea of the indwelling of God in man (p. 410) and of God as the very texture of our human experience (p. 419)? Does it add to the worth, or to the truth, or even to the beauty of our idea of the human self to think that the individual self is the organ, or instrument, of the Absolute (p. 258)? Again we must remember that the alternative to this inverted instrumentality is to conceive of man as a conscious agent laboring to bring to pass in and through the world the possibilities which shine upon the forehead of that world.

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Human Immortality and Pre-existence. J. M. E. M'TAGGART. New York: Longmans, Green & Company. 1915. Pp. 119.

The two essays comprising this little volume were reprinted in 1915 with slight changes from the author's *Some Dogmas of Religion.* It is evident that the author's belief in the practical concern of the question of immortality at the present time led him to reprint these essays separately. The essay on Immortality offers no positive arguments, but endeavors to remove some of the objections "against immortality which have been based on certain facts of ordinary observation, and on certain results of physical science" (p. 10). The argument hinges upon, first, establishing the thesis of subjectivism, that what appears as matter and as my body "is only events in the life of some conscious being" (p. 50). And, secondly, there is a restatement of the Platonic argument that the Self as conscious is no sum of parts, no composition, and hence can not disintegrate, and there is no analogy anywhere which might lead us to suppose that it becomes simply annihilated. The bulk of the second essay is devoted to the argument that the lack of memory from one life to another is no serious barrier to supposing that individual selves are immortal throughout a series of lives, and that such failure to remember our previous existence in no way impairs the value of preexistence and immortality.

To the present reviewer, the substance of these essays appears singularly removed from the temper and requirements of the world we live in now. I say nothing of the way in which untempered subjectivism leaves most of us quite indifferent. Our world is most concerned with the life and the fate of communities, of nations, and of

ideals; not apart from that engrossing interest can the topic of immortality be fruitfully discussed. Indeed, a brochure, such as that of A. Loisy, *Mors et Vita*, professing no arguments, scornful of the reasoned defense of ancient dogmas, seems to body forth more metaphysical vitality than this clearly written and facile exposition of Mr. M'Taggart.

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JOURNALS AND NEW BOOKS

JOURNAL OF EXPERIMENTAL PSYCHOLOGY. Vol. II., No. 6, December, 1917. *Unidextrality and Mirror-Reading* (pp. 393–415): JUNE E. DOWNEY and EDWIN B. PAYSON. – The proposition that asserts a relationship existing between mirror-reading capacity and unidextrality deserves serious consideration. The question of interest is whether or not degree of unidextrality is bound up with certain mental attributes that, taken together, constitute a somewhat definite mental type. *The Differential Spatial Limen for Finger Span* (pp. 416–430): HERBERT SIDNEY LANGFELD. – The measurement of sensitivity for finger span with a standard of 5 cm. for the two most reliable subjects was .45 mm. when one hand was used. When the subjects were forced to make judgments which had the quality of guesses, there were many more right than wrong answers. *A New Olfactometric Technique and Some Results* (pp. 431–447): HERBERT WOODROW and BENJAMIN KARPMAN. – An odormetric technique is presented and several problems are mentioned which might be solved by its use. *The Memory Value of Mixed Sizes of Advertisements* (pp. 448–465): HENRY F. ADAMS. – When variations are used, repetition is much more effective than size, and greater effectiveness will probably be obtained by using small, varied advertisements frequently inserted than by employing larger ones with less frequency. This is from the theoretical standpoint and takes no account of the added cost of preparing new advertisements. *Children's Sense of Harmonies in Colors and Tones* (pp. 466–475): J. F. DASHIELL. – Tests were made on 212 kindergarten children and on a group of college sophomores. With simple colors the two sexes at both ages show a similarity in preferring certain colors but a real difference in the order in which they are preferred. With tone intervals there are no sex differences brought out. *The Relation between Learning and Retention and Amount to be Learned* (pp. 476–484): V. A. C. HENMON. – The results showed that

retroactive inhibition, forgetting, the distribution of attention and fatigue which have been invoked to explain Ebbinghaus's results are more than compensated for by perseveration, by the time permitted for the setting of associations, and by the greater effort of attention which the longer series calls forth.

REVUE PHILOSOPHIQUE. December, 1917. *La matérialisation de l'énergie* (pp. 472–526): L. ROUGIER. – The writer expounds the difficulties of the dualistic doctrine of the universe. Its chief principle is: "Matter alone is endowed with mass, weight, and structure; energy has neither mass, nor weight, nor structure." The metaphysical problem of the action of the imponderable upon the ponderable, of force on matter, disappears as a pseudo-problem that arose from a fictitious antithesis, as a result of more recent theory and research. The five propositions upon which the dualistic doctrine rested have each been refuted. *Psychologie et logique de Destutt de Tracy* (pp. 527–556): R. LENOIR. – The effort of Tracy "to establish logic on new bases ended only in making logic a chapter of psychology. He determines the conditions of certitude in the spirit of Hume. . . . His psychological theory of judgment appeared to lead to a new theory of truth . . . but Tracy on the contrary made the traditional concepts of verity and of science the implicit premises of his analysis of certitude. . . . He tempers his radical empiricism in order to conform to the exigencies of scientific thought." *Revue critique.* Benedetto Croce, *Filosofia come scienza dello spirito,* IV., *Teoria storia della storiografia:* J. PÉRÈS. *Analyses et Comptes rendus.* R. Anthony, *La force et la droit:* L. DUGAS. J. E. Rigolage, *Auguste Comte, La Méthode positive en seize leçons:* LUCIEN ARRÉAT. *Revue des périodiques.*

Marvin, T. S. The Living Past: A Sketch of Western Progress. Third edition. Oxford: Clarendon Press. 1917. Pp. xvi + 296. 3s. 6d.

Rosenow, Curt. The Analysis of Mental Functions. Studies from the Psychological Laboratory of the University of Chicago, Vol. XXIV., No. 5. Princeton, N. J.: Psychological Review Company. 1917. Pp. 43.

Russell, Bertrand. Mysticism and Logic and Other Essays. New York: Longmans, Green, and Company. 1917. Pp. viii + 234. $2.50.

NOTES AND NEWS

THE third annual philosophical lecture before the British Academy under the Henriette Hertz Trust was given by Mr. George Santayana, who took for his topic, "Philosophical Opinion in America." An outline of the lecture is given in the *Educational Review* for April, 1918, from which we quote the following paragraph:

"To sum up, the New World had affected philosophy in two ways. First, it had accelerated and rendered fearless the disintegration of conventional categories, a disintegration on which modern philosophy had always been at work, and it had precipitated its successive phases. Secondly, the younger cosmopolitan America had favored the impartial assemblage and mutual confrontation of all sorts of ideas. It had produced, in intellectual matters, a sort of happy watchfulness and insecurity. Never had the human mind been master of so many facts and sure of so few principles. Would such suspense and fluidity of thought crystallize into some great new system? If a genius arose, that vast collection of suggestions and that radical analysis of presumptions which he would find in America might keep him from going astray."

THE Harvard University Press will publish in the fall a work by Professor W. H. Sheldon, entitled "The Strife of Systems and Productive Duality." The book will be a study in objective metaphysics, and will seek to obtain constructive results from the disagreements that have been most vigorous and fundamental—results applicable in practise as well as in speculation, and throwing, the author hopes, some light on the structure of the world.

THE course of lectures on Symbol Logic, which it had been arranged that Mrs. Christine Ladd-Franklin would give before the Department of Philosophy at Harvard University from April 22 to May 1, has been postponed on account of the existing situation. These lectures were given earlier in the season at Columbia University before the Institute of Arts and Sciences.

DR. BUFORD JENNETTE JOHNSON, Ph.D. (Hopkins, '16), has resigned her position as assistant psychologist in the Laboratory of Social Hygiene, Bedford Hills, N. Y., and has accepted an appointment as research assistant in the Bureau of Education Experiments, New York City.

PROFESSOR SAMUEL P. HAYES, of Mt. Holyoke College, will appreciate any gifts of psychological literature to help replenish the losses sustained in the burning of the psychological library on December 20.

The Journal of Philosophy
Psychology and Scientific Methods

There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last five issues are as follows:

Volume XV. No. 5. February 28, 1918

On the Distinction between Primary and Secondary Qualities. THEODORE DE LAGUNA.
Concerning the Nature of Philosophy. D. W. PRALL.
Societies: New York Branch of the American Psychological Association. A. T. POFFENBERGER.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 6. March 14, 1918

An Apology for Tradition. W. T. BUSH.
The Pragmatic Method. D. T. HOWARD.
Ceremonial Impatience. ELSIE CLEWS PARSONS.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 7. March 28, 1918

Why do Philosophical Problems Persist? B. H. BODE.
The Seventeenth Annual Meeting of the American Philosophical Association. IRWIN EDMAN, WARNER FITE, HELEN PARKHURST.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 8. April 11, 1918

Dualism and Early Modern Philosophy. ALBERT G. A. BALZ.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

Volume XV. No. 9. April 25, 1918

Dualism and Early Modern Philosophy. II. ALBERT G. A. BALZ.
Estimation of Centidiurnal Periods of Time: An Experimental Investigation of the Time Sense. HARRY CARY.
Reviews and Abstracts of Literature. Journals and New Books. Notes and News.

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Subscription $5. 575 pages annually. Edited by G. Stanley Hall.
Quarterly. Pedagogy and educational psychology. Founded 1891.

Psychological Review—Princeton, N. J.: Psychological Review Company.
Subscription (with Psychological Bulletin) $6. 480 pages annually.
Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin—Princeton, N. J.: Psychological Review Company.
Subscription $3.25. 480 pages annually. Psychological literature.
Monthly. Founded 1904. Edited by Shepherd I. Franz.

Psychological Monographs—Princeton, N. J.: Psychological Review Company.
Subscription $4 per vol. 500 pp. Founded 1895. Ed. by James R. Angell.
Published without fixed dates, each issue one or more researches.

Psychological Index—Princeton, N. J.: Psychological Review Company.
Subscription $1.25. 200 pp. Founded 1895. Edited by Madison Bentley.
An annual bibliography of psychological literature.

Journal of Philosophy, Psychology, and Scientific Methods—New York.
Sub-Station 84. Bi-weekly. 728 pages per volume. Founded 1904.
Subscription $3. Edited by F. J. E. Woodbridge and Wendell T. Bush.

Archives of Psychology—Sub-station 84, N. Y.: Archives of Psychology.
Subscription $5. 600 pp. ann. Founded 1906. Ed. by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology—Boston: Richard G. Badger.
Subscription $5. 480 pages annually. Edited by Morton Prince.
Bi-monthly. Founded 1906. Entire field of abnormal psychology.

Psychological Clinic—Philadelphia: Psychological Clinic Press.
Subscription $1.50. 280 pages annually. Edited by Lightner Witmer.
Monthly (9 numbers). Orthogenics, psychology, hygiene. Founded 1907.

Training School Bulletin—Vineland, N. J.: The Training School.
Subscription $1. 160 pp. ann. Ed. by E. R. Johnstone. Founded 1904.
Monthly (10 numbers). Psychology and training of defectives.

Journal of Religious Psychology—Worcester, Mass.: Louis N. Wilson.
Subscription $3. 480 pages per vol. Founded 1904. Ed. by G. Stanley Hall
Published without fixed dates. 4 numbers constitute a volume.

Journal of Race Development—Worcester, Mass.: Louis N. Wilson.
Subscription $2. 460 pages annually. Founded 1910.
Quarterly. Edited by George H. Blakeslee and G. Stanley Hall.

Journal of Educational Psychology—Baltimore: Warwick & York.
Subscription $3. 600 pages annually. Founded 1910.
Monthly (10 numbers). Managing Editor, J. Carleton Bell.
(Educational Psychology Monographs. Edited by Guy M. Whipple.
Published separately at varying prices. Same publishers.)

Journal of Animal Behavior—Cambridge, Mass.: Emerson Hall.
Subscription $5. 450 pp. annually. Founded 1911.
Bi-monthly. Robert M. Yerkes, Managing Editor.

The Behavior Monographs—Cambridge, Mass.: Emerson Hall.
Subscription $5. 450 pages per volume. Edited by John B. Watson.
Published without fixed dates, each number a single research.

Psychoanalytic Review—Washington, D. C.: 3617 10th St., N. W.
Subscription $5. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Ed. by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology—Princeton, N. J.
Psychological Review Company. 480 pages annually. Experimental.
Subscription $3.25. Founded 1916. Bi-monthly. Ed. by John B. Watson.

Journal of Applied Psychology—Worcester, Mass.: Florence Chandler.
Subscription $4. 400 pages annually. Quarterly. Founded 1917.
Edited by G. Stanley Hall, John Wallace Baird and L. R. Geissler.

Journal of Experimental Psychology—Princeton, N. J.
Psychological Review Company. 480 pages annually. Experimental.
Founded 1915. Subscription $3. Bi-monthly. Edited by John B. Watson.